

App. Serial No.: 10/801,942
Atty. Docket No.: 0057-011

REMARKS

These remarks are in response to the Office Action dated May 15, 2006, which has a shortened statutory period for response set to expire August 15, 2006. A three-month extension, to expire November 15, 2006, is requested in a petition filed herewith.

Title

The title is amended in response to the Examiner's objection. Should the Examiner disapprove of the amended title, the Examiner is invited to suggest an acceptable title.

Drawings

The drawings are objected to under 37 CFR § 1.83(a). The Examiner writes:

The drawings must show every feature of the invention specified in the claims. Therefore, the computers being assigned to different tasks (claims 1, 2, 14, 19, and 23), asynchronous communication (claim 5, 22), a plurality of parallel data lines (claim 6), and the global positioning system receiver (claim 24) must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Applicant respectfully traverses.

With respect to the computers being assigned different tasks, Applicant notes that Fig. 1 shows a plurality of computers 12, with one of the computers being labeled 12a. Applicant's specification, at Page 5, Lines 18-19, indicates that computer 12a is a "memory controller computer." Additionally, Applicant's specification indicates that the computers nearest the edge of the die (shown connected to input/output circuits 26) perform input/output functions, and the computers 12 on the interior of the die perform computational and control functions. See Applicant's specification, Page 6, Lines 16-28, which makes clear that the computers 12 shown in Fig. 1 are assigned different tasks. Note also that the computers shown in Fig. 3 are each labeled with different indices, and the description of Fig. 3, at Page 8, Line 12 to Page 9, Line 30 describes the different functions of computers 12a-12y.

With respect to asynchronous communication and a plurality of parallel data lines, data lines 16 are shown in Fig. 1. Applicant's specification, at Page 4, Lines 22, indicates that "data lines 16 are asynchronous high speed parallel data lines."

App. Serial No.: 10/801,942
Atty. Docket No.: 0057-011

With respect to the global positioning receiver, the computers shown in Fig. 3 are each labeled with different indices, and the description of Fig. 3, at Page 8, Line 12 to Page 9, Line 30 describes the different functions of computers 12a-12y as a GPS receiver.

For the foregoing reasons, Applicant respectfully requests reconsideration and withdrawal of the objections to the drawings. Should the Examiner still be of the opinion that the drawings fail to show every feature of the invention specified in the claims, the Examiner is invited to suggest acceptable drawing amendments.

Claims

Claims 1-26 are pending in the above-identified application. Claims 1-26 are rejected over prior art. Claim 24 is objected to. Claims 1, 14, 19, 23, and 24 are amended, and Claims 27-44 are added. Claims 2-13, 15-18, 20-22, and 25-26 remain as filed. Reconsideration is requested.

Applicant appreciates the Examiner's clear statement of grounds for rejection. The citations to specific elements of the cited reference were particularly helpful. In addition, the Examiner's suggestions for amendments to overcome certain rejections are also very much appreciated.

Claim Objections

Claim 24 is objected to due to an informality. The Examiner writes:

Claim 24: The sentence does not make sense as it currently reads, as a global positioning system receiver cannot be accomplished. Examiner will interpret the claim to read "accomplishing functions of a global positioning system receiver."

Claim 24 is amended herein to correspond to the Examiner's proper interpretation of the claim. Therefore, Applicant requests reconsideration and withdrawal of the objection to Claim 24.

Rejection Under 35 U.S.C. §101

Claims 14-18 and 23-26 are rejected under 35 U.S.C. § 101 as being directed to nonstatutory subject matter.

App. Serial No.: 10/801,942
Atty. Docket No.: 0057-011

Claims 14 and 23 are amended herein as suggested by the Examiner to overcome the rejections. Therefore, withdrawal of the rejections under 35 U.S.C. §101 is respectfully requested.

Rejections Under 35 U.S.C. § 102

Claims 1-4, 6-7, 12-14, 17-21, and 23-26 are rejected under 35 U.S.C. § 102 (b) as being anticipated by U.S. Publication No. 2003/0028750 (Hogenauer). Claims 1, 14, 19, and 23 are also rejected under 35 U.S.C. §102(b) as being anticipated by Applicant's admitted prior art.

The Claims are amended herein to obviate most, but not all, of the rejections under 35 U.S.C. § 102(b). In particular, the original independent claims are amended to include limitations similar, but not identical, to original Claim 7, which Applicant respectfully asserts is not disclosed or obvious in view of the cited reference.

The standard for anticipation is set forth in M.P.E.P. § 2131 as follows:

"A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros. v. Union Oil Co. of California*, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). "The identical invention must be shown in as complete detail as is contained in the ... claim." *Richardson v. Suzuki Motor Co.*, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989).

Claim 1

As amended herein, Claim 1 recites:

1. A computer array, comprising:
a plurality of computers; and
and a plurality of data paths connecting the computers, **the data paths being hard wired between associated pairs of the computers;**
and wherein,
at least some of the computers are assigned a task different from that assigned to the other computers. (emphasis)

Neither Hogenauer nor Applicant's admitted prior art discloses "the data paths being hard wired between associated pairs of the computers," as recited in Claim 1. Rather, as the Examiner correctly points out, Hogenauer discloses that matrices 150 are interconnected by a matrix

App. Serial No.: 10/801,942
Atty. Docket No.: 0057-011

interconnection network 110. Very little detail is provided with respect to matrix interconnection network 110, but it is clear that it is a shared network and there are no direct hard wired connections between individual matrices 150A-150N.

Because the cited prior art does not disclose each and every element of Claim 1, the cited prior art does not anticipate Claim 1. Applicant, therefore, respectfully requests reconsideration and withdrawal of the rejection of Claim 1. Claims 2-13 depend from Claim 1 and are, therefore, distinguishable over the cited reference for at least the same reasons as Claim 1.

Claim 14

As amended herein, Claim 14 recites (in part): "a plurality of computers interconnected via discrete sets of data lines, each set of data lines being dedicated to a particular pair of the computers." For at least the reasons set forth above with respect to Claim 1, Applicant respectfully asserts that the cited prior art does not disclose this limitation of Claim 14 and does not, therefore, anticipate Claim 14. Claims 15-18 depend from Claim 14 and are, therefore, distinguishable over the cited reference for at least the same reasons. Applicant respectfully requests withdrawal of the rejections of Claims 14-18.

Claim 19

As amended herein, Claim 19 recites (in part): "each of the data connections being directly accessible to no more than two of the computers." Hogenauer does not disclose this limitation of Claim 19. To the contrary, Hogenauer discloses that all of matrices 150 have access to matrix interconnection network 110.

Because neither Hogenauer nor Applicant's admitted prior art disclose each and every element of Claim 19, the cited prior art does not anticipate Claim 19. Claims 20-22 depend from Claim 19 and are, therefore, distinguishable over the cited reference for at least the same reasons. Applicant respectfully requests withdrawal of the rejections of Claims 19-22.

Claim 23

As amended herein, Claim 23 recites (in part): "providing the plurality of computers interconnected by data lines, each of the data lines being accessible to no more than two of the computers." Therefore, Claim 23 is distinguishable over the cited prior art for at least the same

App. Serial No.: 10/801,942
Atty. Docket No.: 0057-011

reasons as Claim 19. Claims 24-26 depend from Claim 23 and are, therefore, distinguishable over the cited reference for at least the same reasons. Applicant respectfully requests withdrawal of the rejections of Claims 23-26.

For the above reasons Applicants request reconsideration and withdrawal of the rejections under 35 U.S.C. § 102.

Rejections Under 35 U.S.C. § 103

Claims 5, 8-11, 15-16, and 22 are rejected under 35 U.S.C. § 103 as being unpatentable over Hogenauer.

Applicant respectfully traverses.

M.P.E.P. § 2142 sets forth the procedural framework for the examination process of determining obviousness:

The examiner bears the initial burden of factually supporting any *prima facie* conclusion of obviousness. If the examiner does not produce a *prima facie* case, the applicant is under no obligation to submit evidence of nonobviousness. If, however, the examiner does produce a *prima facie* case, the burden of coming forward with evidence or arguments shifts to the applicant who may submit additional evidence of nonobviousness...

M.P.E.P. §2143 sets forth the requirements of a *prima facie* case of obviousness:

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations.

Thus, if any element of the *prima facie* case of obviousness is not met, the obviousness rejection is improper and should be withdrawn.

Initially, Applicant notes that the claims subject to the obviousness rejections now include the limitations amended into the independent base claims as described above.

App. Serial No.: 10/801,942
Atty. Docket No.: 0057-011

Claims 5 and 22

The Examiner indicates that Hogenauer fails to disclose that communication between the computers is asynchronous, but takes official notice that asynchronous communication is well known in the art. The Examiner writes:

Asynchronous communication provides the benefit of not having to provide a single clock signal to multiple elements, eliminating wiring and decreasing physical size of the logic.

Applicant respectfully objects to the Examiner's taking of official notice regarding the benefits of asynchronous communication. Indeed, Applicant respectfully asserts that asynchronous communication generally requires more complex hardware than synchronous communication. Although a clock signal line may be eliminated, a plurality of other signal lines are required to effect asynchronous communication. Therefore, Applicant requests that the Examiner provide a reference on the record to support the fact that the asserted advantages of asynchronous communication are well known in the art. Without such evidence, the third element of the prima facie case of obviousness is not satisfied. In particular, the prior art fails to teach or suggest all of the claim limitations.

Further, the third element of the prima facie case of obviousness is not satisfied, because there is no suggestion to modify the device of Hogenauer to include asynchronous communication between the matrices 150 of the adaptive computing engine 100. In particular, there is no evidence of record that asynchronous communication is known to provide an advantage in a processor array. To the contrary, Applicant respectfully asserts that asynchronous communication is typically employed for communicating with peripheral devices over long busses. The processors of a processor array are typically spaced close together, most likely on the same integrated circuit chip. The device of Hogenauer is "preferably embodied as an integrated circuit." (Hogenauer, Paragraph 0014) Thus, the primary advantage of asynchronous communication is not necessary.

Claim 22 recites (in part): "communication between the computers is asynchronous" and is, therefore allowable over the cited reference for at least the same reasons as Claim 5.

For the foregoing reasons, Applicant respectfully requests reconsideration and withdrawal of the rejection of Claims 5 and 22 under 35 U.S.C. §103.

App. Serial No.: 10/801,942
Atty. Docket No.: 0057-011

Claims 8-11

Claims 8-11 are directed to particular numbers and arrangement of computers in the array. Applicant notes further that Claims 8-11 now include the data path limitations of amended Claim 1.

Applicant agrees with the Examiner that it is well known in the art to increase the number of processors in a system. However, Applicant strongly objects to the taking of official notice regarding any particular arrangement of processors in an array. The Examiner is requested to provide evidence on the record regarding the particular array arrangements recited in Applicant's claims. There is simply no indication in the prior art that the claimed arrays provide any advantage. For example, although more processors could provide increased processing throughput, there is no teaching or suggestion in the prior art that a four by six array (24 computers) would provide an advantage over a two by twelve array (24 computers).

Further, Applicant respectfully asserts that the Examiner has overstated the rule of In re Japiske, 86 USPQ 70 (CCPA 1950). In particular, In re Japiske does not dictate that a rearrangement of parts cannot be patentable. In re Japiske is described in MPEP §2144.04(VI)C) as follows:

Claims to a hydraulic power press which read on the prior art except with regard to the position of the starting switch were held unpatentable because shifting the position of the starting switch would not have modified the operation of the device. (emphasis added)

However, the claimed arrangement of computers does modify the operation of Applicant's computer array, especially when considered in conjunction with the amended data path limitations of Claim 1. In particular, the arrangements provide the advantages described in Applicant's specification at Page 7, Line 3 – Page 8, Line 5. For example, the number of "hops" required to access a particular computer depends on structure of the array. Thus, Applicant's invention is not sufficiently similar to the facts of In re Japiske for that case to provide sufficient rationale to support the obviousness rejection. Therefore, it is improper to rely on legal precedent as a basis for the obviousness rejection.

For the foregoing reasons, Applicant respectfully requests reconsideration and withdrawal of the rejections of Claims 8-11 under 35 U.S.C. §103.

App. Serial No.: 10/801,942
Atty. Docket No.: 0057-011

New Claims

New Claims 27-41 depend, either directly or indirectly, from Claim 1 and are, therefore, allowable over the prior art of record for at least the same reasons as Claim 1.

New Claim 42 is allowable over the prior art of record, because the prior art of record fails to teach or suggest "at least some of the computers include dedicated memory for the exclusive use of an associated one of the computers."

New Claim 43 is allowable over the prior art of record, because the prior art fails to teach or suggest "a plurality of computers operating asynchronously."

New Claim 44 depends from Claim 43 and is allowable over the prior art of record for at least the same reasons as Claim 43.

For the foregoing reasons, Applicants believe Claims 1-44 are in condition for allowance. In addition, Applicant notes that the amendment of Claim 1 does not necessitate new grounds of rejection, because the limitations added to Claim 1 existed in original Claim 7. Should the Examiner undertake any action other than allowance of Claims 1-44, or if the Examiner has any questions or suggestions for expediting the prosecution of this application, the Examiner is requested to contact Applicant's attorney at (269) 279-8820.

Respectfully submitted,

Date: 11/11/06

Larry E. Henneman, Jr.

Larry E. Henneman, Jr., Reg. No. 41,063
Attorney for Applicant(s)
Henneman & Associates, PLC
714 W. Michigan Ave.
Three Rivers, MI 49093

CERTIFICATE OF FACSIMILE TRANSMISSION (37 CFR 1.8(a))

I hereby certify that this paper (along with any referred to as being attached or enclosed) is being transmitted via facsimile, on the date shown below, to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, at (571) 273-8300.

Date: 11/11/06

Larry E. Henneman, Jr.
Larry E. Henneman, Jr.